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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,786	07/28/2006	Nobuharu Tahara	UNIU79.071APC	2110

20995 7590 07/16/2009  
KNOBBE MARTENS OLSON & BEAR LLP  
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EXAMINER
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NEGRELLI, KARA B

ART UNIT	PAPER NUMBER
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1796

NOTIFICATION DATE	DELIVERY MODE
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07/16/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,786	<b>Applicant(s)</b> TAHARA ET AL.	
	<b>Examiner</b> KARA NEGRELLI	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 June 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,6 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7-10 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/28/2006</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**POROUS FILM AND METHOD FOR PREPARTION THEREOF**

**DETAILED ACITION**

***Response to Amendment***

1. Claims 3-4, 6, and 13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 03,2009.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "irregular" in claim 7 is a relative term which renders the claim indefinite. The term "irregularly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "irregularly" is used to describe the resin used to produce a film and the pore spaces within said film.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 7, 9-10, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Minegishi et al. (US 2003/0094409).

7. Minegishi et al teach a process for preparing a hollow fiber membrane comprising discharging a polyvinylidene fluoride (PVDF) resin in a poor solvent at a temperature above phase separation temperature and then cooling the liquid raw material (paragraph [0010]). Minegishi et al. further teach that the polymer solution is cooled from a temperature above the phase separation temperature in the range of 80°C to 175°C by cooling liquid, meaning the PVDF/poor solvent solution is above 170°C and below the thermal decomposition temperature of the PVDF resin. In this process, microspheric structures connect to each other to form a membrane having pores (paragraphs [0023] and [0024]). Examples of poor solvents include dimethyl phthalate (paragraph [0022]). The membrane of Minegishi et al. has pores with an average diameter of from 0.01 to 20 µm, preferably 0.01 to 10 µm (paragraph [0052]), the pore diameter of which overlaps the instantly claimed range (claim 10). Minegishi et al. also teach that membrane has a porosity of of from 40% to 75% (See claim 11, US 2003/0094409). Figure 4 of Minegishi et al. further shows a microstructure with a resin

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phase continuous in a three-dimensional manner with a network structure with irregularly pore spaces between.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minegishi et al. (US 2003/0094409) and further in view of Ross et al. (US 6,521,690).

10. Minegishi et al. teach that additives such as inorganic salts can be added to the membrane, but do not expressly teach that the salts are organized clay such as inorganic silicates, said silicates of which are prepared using alkylene oxide or onium ions.

11. However, Ross et al. teach a modified clay/polymer composition using a thermoplastic polymer and a smectite clay modified with organic chemicals (column 4, lines 50-52). Ross et al. further teach that the thermoplastic polymer can comprise polyvinylidene fluoride resin (column 10, line 15) and the smectite clay is reacted with one or more ammonium compounds and one or more anionic organic materials before being dispersed into the polymer resin (column 5, lines 34-39). The smectite clay disclosed in Ross et al. can include phyllosilicates which can be assembled into layers

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(column 5, lines 40-43 and lines 46-49). The ammonium compound can comprise alkoxyated groups such as alkylene oxide (column 6, line 64 - column 7, line 16).

12. It would have been obvious to one of ordinary skill in the art to use the organized clay compositions of Ross et al. in the process for producing a membrane taught by Minegishi et al. because the compositions made by Ross et al. exhibit improved tensile strength, tensile modulus, gas barrier, and heat distortion temperatures (column 11, lines 14-17). Furthermore, the organized clays are easily dispersed into both polar and nonpolar thermoplastic polymers, the organoclay can be made inexpensively, and their polymers do not need compatibilizers or grafting to allow the organoclay to be dispersed within it (column 4, lines 50-59).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARA NEGRELLI whose telephone number is (571)270-7338. The examiner can normally be reached on Monday through Friday 8:00 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KARA NEGRELLI/  
Examiner, Art Unit 1796

/Randy Gulakowski/  
Supervisory Patent Examiner, Art Unit 1796